

**102RAS  
Industrial  
Remote Access Server**

**User Manual &  
Installation  
Guide**

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## Industrial Remote Access Server Installation Guide

### 102RAS



The N-TRON 102RAS provides connectivity to an industrial LAN for telecommuters or mobile users, or to remotely installed equipment, via an integrated V.92/56K modem. The small size of the 102RAS makes it ideal for placing alongside other industrial equipment to be accessed remotely.

### Product Features

- LAN Port: 10/100BaseT; RJ-45
- WAN Port: V92/56K modem; RJ-11
- Rates:  
Data: V.92/56K downloads and 48K upload speeds from V.92 servers; V.90/56K downloads from V.90/K56flex servers; 33.6K bps transfers with other servers.
- Standards:  
Data: V.92, V.90, enhanced V.34 and below  
Error Correction: V.42  
Data Compression: V.44, V.42bis, MNP Class 5
- Security  
Local database or RADIUS support  
Callback security (local database only)
- Redundant Power Inputs (10-30 VDC)
- Housed in a ruggedized DIN rail enclosure, designed to withstand the most demanding industrial applications, and have been fully tested and certified at industrial environmental extremes
- Web Browser Configuration

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820 S. University Blvd., Suite 4E  
Mobile, AL 36609  
USA

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## **WARNING**

Do not perform any services on the unit unless qualified to do so. Do not substitute unauthorized parts or make unauthorized modifications to the unit.

Do not operate the unit with the top cover removed, as this could create a shock or fire hazard.

Do not block the air vents on the top of the unit.

Do not operate the equipment in the presence of flammable gasses or fumes. Operating electrical equipment in such an environment constitutes a definite safety hazard.

Do not operate the equipment in a manner not specified by this manual.

## **General Safety Warnings**

**WARNING:** If the equipment is used in the manner not specified by N-Tron Corp., the protection provided by the equipment may be impaired.

## **Contact Information**

N-Tron Corp.  
820 South University Blvd. Suite 4E  
Mobile, AL 36609  
TEL: (251) 342-2164  
FAX: (251) 342-6353  
Website: [www.n-tron.com](http://www.n-tron.com)  
Email: [N-TRON\\_Support@n-tron.com](mailto:N-TRON_Support@n-tron.com)

## Environmental Safety



**WARNING:** Disconnect the power and allow to cool 5 minutes before touching.

## Electrical Safety



**WARNING:** Disconnect the power cable before removing any modules, or any enclosure panel.

**WARNING:** Do not operate the unit with the cover removed.

**WARNING:** Properly ground the unit before connecting anything else to the unit. Units not properly grounded may result in a safety risk and could be hazardous and may void the warranty. See the grounding technique section of this user manual for proper ways to ground the unit.

**WARNING:** Do not work on equipment or cables during periods of lightning activity.

**WARNING:** Do not perform any services on the unit unless qualified to do so.

**WARNING:** Do not operate the equipment in the presence of flammable gasses or fumes. Operating electrical equipment in such an environment constitutes a definite safety hazard.

**WARNING:** Do not block the air vents.

**WARNING:** Observe proper DC Voltage polarity when installing power input cables. Reversing voltage polarity can cause permanent damage to the unit and void the warranty.

## Hazardous Location Installation Requirements

1. **WARNING:** Explosion hazard – Do not replace the device unless power has been switched off or the area is known to be non-hazardous.
2. **WARNING:** Explosion hazard. Do not disconnect while the circuit is live or unless the area is known to be non-hazardous.
3. **WARNING:** Install only in accordance with Local & National Codes of Authorities Having Jurisdiction.
4. **WARNING:** Explosion Hazard - Substitution of components may impair suitability for Class I, Division 2.

5. Class I, Div 2 Installations require that power connections must be current limited at the power source with an in-line fuse rated at 0.5A.
6. Class I, Div 2 installations require that all devices connected to this product must be UL listed for the area in which it is installed.
7. Use 60/75°C rated Copper wire, (022Nm) 2 inch-lbs Tightening torque for field installed connectors.
8. Limited Operating Voltage: 10-30V for Class I, Div 2 installations.
9. This apparatus is suitable for use in Class I, Div 2, Groups A, B, C, and D, or unclassified or nonhazardous locations only.

### **Package Contents**

Please make sure the 102RAS Remote Access Server package contains the following items:

1. 102RAS Remote Access Server
2. Product CD

Contact your carrier if any items are damaged.

### **Installation**

Read the following warning before beginning the installation:

#### **WARNING**

Never install or work on electrical equipment or cabling during periods of lightning activity. Never connect or disconnect power when hazardous gasses are present.



Disconnect the power cable before removing any enclosure panel.  
Do not operate the unit with any covers removed

### **Unpacking**

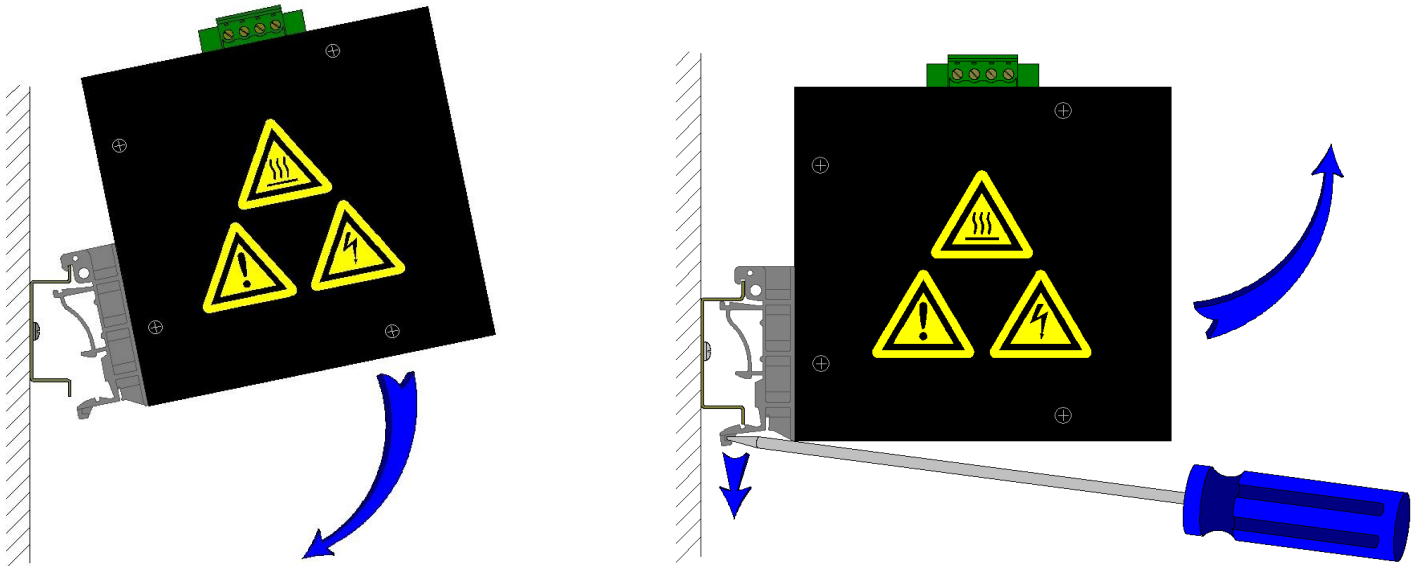
Remove all the equipment from the packaging, and store the packaging in a safe place. File any damage claims with the carrier.

### **Cleaning**

Clean only with a damp cloth.

## DIN Rail Mounting

Install the unit on a standard 35mm DIN rail. Recess the unit to allow at least 3" of horizontal clearance for cable bend radius.



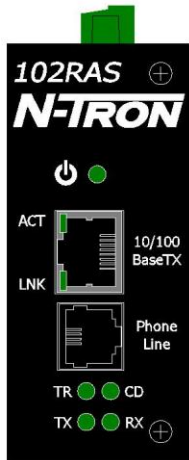
To mount the unit to the 35mm DIN rail, place top edge of the brackets on the back of the unit against the DIN rail at a 45° upward angle. Lower the bottom of the unit until it snaps into place on each bracket.

To remove the unit from the 35mm DIN rail, typically it is possible to remove the unit by using your index and middle fingers or use flat head screwdrivers placed into each of the release clips at the bottom of the unit to push down on each clip until they disengage the bottom of the unit from the DIN rail. Lift the bottom of the unit up at an approximate 45° upward angle to completely remove the unit.



Most N-Tron™ products are designed to be mounted on industry standard 35mm DIN rail. However, DIN rail mounting may not be suitable for all applications. Our Universal Rack Mount Kit (P/N: URMK) may be used to mount the 102RAS to standard 19" racks as an option.

## Front Panel



### From Top to Bottom:

	Green LED lights when Power is supplied to the module
<b>RJ-45 Port</b>	Auto sensing 10/100 Base-TX Connection
<b>RJ-11 Port</b>	Phone line connection
<b>TR</b>	Transmit Ready
<b>CD</b>	Carrier Detect
<b>TX</b>	Transmit
<b>RX</b>	Receive

**Note:** The RJ45 data port has two LED's located at the side of the connector. The bottom LED indicates LINK status, and the top LED indicates ACTIVITY.

**LED's:** The table below describes the operating modes:

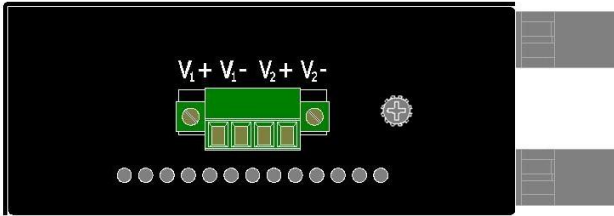
LED	Description
	Lit when Power is applied.
<b>LNK</b>	Lit when 10/100 Mb Link between ports exists.
<b>ACT</b>	Lit when data is active between ports.
<b>TR</b>	Lit when 102RAS modem is ready to answer.
<b>CD</b>	Lit when carrier is detected by 102RAS.
<b>TX</b>	Lit when data is being transmitted by 102RAS.
<b>RX</b>	Lit when data is being received by 102RAS.

## Phone Interface

The 102RAS provides an RJ-11 phone line interface to connect to a standard wall outlet.



## Applying Power (Top View)



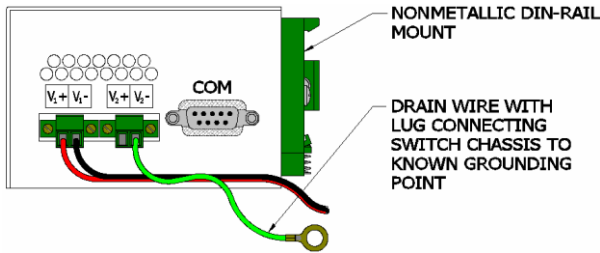
- Remove Supplied #6 Phillips head grounding screw from top of unit.
- Connect ground wire with lug (not supplied) and re-install the grounding screw securely.
- Unscrew & Remove the DC Voltage Input Plug from the Power Input Header
- Install the DC Power Cables into the Plug (observing polarity).
- Plug the Voltage Input Plug back into the Power Input Header.
- Tightening torque for the terminal block power plug is **0.22 Nm/0.162 Pound Foot**.
- Verify the Power LED stays ON (GREEN).

**Note:** Only 1 power supply must be connected to power for minimal operation. For redundant power operation,  $V_1$  and  $V_2$  inputs must be connected to separate DC Voltage sources. This device draws current from both sources simultaneously. Use 16-28 gauge wire when connecting to the power supply.

Recommended 24V DC Power Supplies, similar to: N-Tron's P/N **NTPS-24-1.3**, 24VDC at 1.3A

## N-TRON SWITCH GROUNDING TECHNIQUES

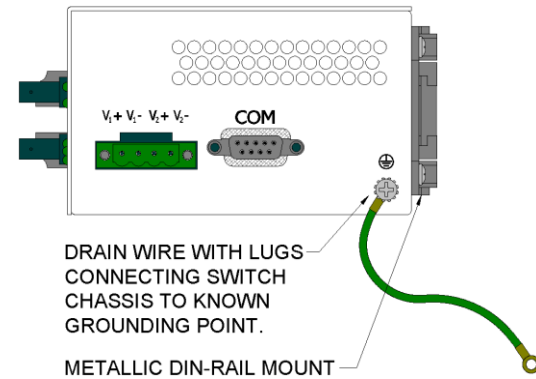
The grounding philosophy of any control system is an integral part of the design. N-Tron switches are designed to be grounded, but the user has been given the flexibility to float the switch when required. The best noise immunity and emissions (i.e. CE) are obtained when the N-Tron switch chassis is connected to earth ground via a drain wire. Some N-Tron switches have metal din-rail brackets that can ground the switch if the din-rail is grounded. In some cases, N-Tron switches with metal brackets can be supplied with optional plastic brackets if isolation is required.



Both V- legs of the power input connector are connected to chassis internally on the PCB. Connecting a drain wire to earth ground from one of the V- terminal plugs as shown here will ground the switch and the chassis. The power leads from the power source should be limited to 3 meters or less in length.

As an alternate, users can run a drain wire & lug from any of the Din-Rail screws or empty PEM nuts on the enclosure. When using an unused PEM nut to connect a ground lug via a machine screw, care should be taken to limit the penetration of the outer skin by less than 1/4 in. Failure to do so may cause irreversible damage to the internal components of the switch.

Note: Before applying power to the grounded switch, you must use a volt meter to verify there is no voltage difference between the power supply's negative output terminal and the switch chassis grounding point.



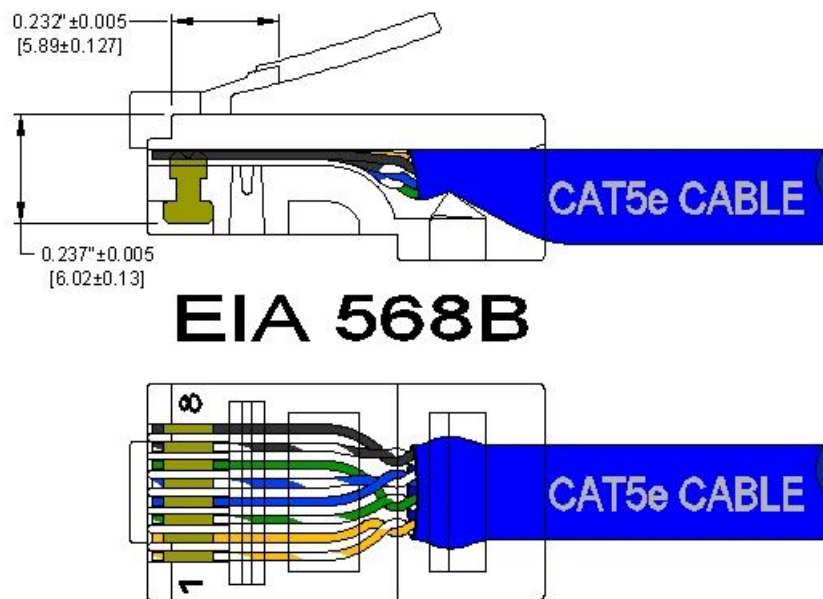
If the use of shielded cables is required, it is generally recommended to only connect the shield at one end to prevent ground loops and interfere with low level signals (i.e. thermocouples, RTD, etc.). Cat5e cables manufactured to EIA-568A or 568B specifications are required for use with N-Tron Switches.



In the event all Cat5e patch cable distances are small (i.e. All Ethernet devices are located the same local cabinet and/or referenced to the same earth ground), it is permissible to use fully shielded cables terminated to chassis ground at both ends in systems void of low level analog signals.

## RJ45 CONNECTOR CRIMP SPECIFICATIONS

Please reference the illustration below for your Cat5 cable specifications:



## Overview of Features

### Compact Remote Access Solution

The 102RAS includes one integrated V.92/56K modem, housed in a compact, industrial chassis which provides V.92/56K download speeds and 48K upload speeds when connecting with V.92 servers. Dial-in users can achieve V.34/33.6K connections. Unit ships with 35mm DIN rail connector suitable for mounting the unit on 35mm DIN rail in industrial environment.

### Secure Remote Access

The 102RAS has a built-in security database for user name and password authentication for all remote users. It also has a built-in RADIUS client for authentication to a RADIUS server.

### Callback Security

The 102RAS provides password protection with callback security, and helps reduce long distance charges, for remote offices and users requiring access to the central site LAN. The 102RAS server supports three security options. The “fixed” callback option stores a password and the remote user’s phone number. Once the remote site enters their password, the 102RAS calls back using the number stored in its database. The “variable” option lets the user enter a fixed password and a variable call back number each time they call. The “pass through” option is used to provide the security of password protection, while bypassing the call back process.

### Configuration and Management


The 102RAS web interface provides for easy set-up and configuration. In addition, it provides the ability to view the current line status as well as a history of past activity.

**Note: N-Tron does not provide technical support for the below Shared Modem Usage using Third Party software (N-Tron does not provide any software for this use).**

### Shared Dial-Out Convenience

The 102RAS can also provide dial-out support for PC users on IP. This means system administrators no longer have to dedicate a modem for LAN users who need to access information services. When used in Modem Sharing mode, computers with network access to the 102RAS can use Telnet on port 7000 and get direct access to the modem in the 102RAS. More commonly a com port redirector can be installed on the workstation(s). A redirector adds a virtual communication port to Windows and uses Telnet to map (redirect) the com port to the modem. Communication programs using this virtual com port will have its data redirected to and from the modem within the 102RAS, eliminating the need for each workstation to have its own modem and phone line. Only one com port (telnet session) can be open at a time.

## **Troubleshooting**

1. Make sure the  (Power LED) is ON.
2. Make sure you are supplying sufficient current. Note: The Inrush current will exceed the steady state current by ~ 2X.
3. Verify that Link LED's are ON for connected ports.
4. Verify cabling used between stations.
5. Verify the phone socket that the phone line from the 102RAS is plugged into is operational.
6. Verify that cabling is Category 5E or greater for 100Mbit Operation.

## **Support:**

Contact N-Tron Corp. at:

TEL: 251-342-2164

FAX: 251-342-6353

[www.n-tron.com](http://www.n-tron.com)

[N-TRON\\_Support@n-tron.com](mailto:N-TRON_Support@n-tron.com)

## **Regulatory Statements**

### **47 CFR Part 15 Regulation**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

### **Industry Canada**

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-o003 du Canada.

### **47 CFR Part 68 Telecom**

1. This equipment complies with Part 68 of the 47 CFR rules and the requirements adopted by the ACTA. Located on this equipment is a label that contains, among other information, the registration Number and ringer equivalence number (REN) for this equipment or a product identifier in the format:  
For current products is *US:AAAEQ##Txxxx*.  
For legacy products is *AU7USA-xxxxx-xx-x*.  
If requested, this number must be provided to the telephone company.
2. A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable 47 CFR Part 68 rules and requirements adopted by the ACTA. It's designed to be connected to a compatible modular jack that is also compliant.
3. The ringer equivalence number (REN) is used to determine the number of Devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the Devices not ringing in response to an incoming call. In most but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of Devices that may be connected to a line, as determined by the total RENs, contact the local telephone company. For products approved after July 23, 2001, the REN for this product is part of the product identifier that has the format *US:AAAEQ##Txxxx*. The digits represented by *##* are the REN without a decimal point (*e.g.*, 03 is a REN of 0.3). For earlier products, the REN is separately shown on the label.
4. If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.
5. The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.
6. If trouble is experienced with this equipment, please contact N-Tron Corp. at the address shown below for details of how to have the repairs made. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.
7. Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.
8. No repairs are to be made by you. Repairs are to be made only by N-Tron Corp. or its licensees. Unauthorized repairs void registration and warranty.

9. If your home or office has specially wired alarm equipment connected to the telephone line, ensure the installation of this equipment does not disable your alarm equipment. If you have questions about what will disable alarm equipment, consult your telephone company or a qualified installer.
10. This equipment is hearing aid compatible.

11. Manufacturing Information:

Manufacturer:	N-Tron Corp.
Trade Name:	102RAS
Model Number:	102RAS
Registration No:	AU7USA-25814-M5-E
Ringer Equivalence:	0.3B
Modular Jack (USOC):	RJ11
Service Center in USA:	N-Tron Corp. 820 South University Blvd. Suite 4E Mobile, AL 36609 U.S.A. (251) 342-2164 (251) 342-6353 Fax

### **Canadian Limitations Notice**

Notice: The ringer equivalence number (REN) assigned to each terminal Device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of Devices subject only to the requirement that the sum of the ringer equivalence numbers of all the Devices does not exceed 5.

Notice: The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. The Industry Canada label does not guarantee the equipment will operate to the user's satisfaction. Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations. Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment or equipment malfunctions may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

**Caution:** Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

### **New Zealand Telecom Warning Notice**

1. The grant of a Telepermit for any item of terminal equipment indicates only that Telecom has accepted that the item complies with minimum conditions for connection to its network. It indicates no endorsement of the product by Telecom, nor does it provide any sort of warranty. Above all, it provides no assurance that any item will work correctly in all respects with another item of Telepermitted equipment of a different make or model, nor does it imply that any product is compatible with all of Telecom's network services. This equipment is not capable under all operating conditions of correct operation of correct operation at the higher speed which it is designated. 33.6 kbps and 56 kbps connections are likely to be

restricted to lower bit rates when connected to some PSTN implementations. Telecom will accept no responsibility should difficulties arise in such circumstances.

2. Immediately disconnect this equipment should it become physically damaged, and arrange for its disposal or repair.
3. This modem shall not be used in any manner which could constitute a nuisance to other Telecom customers.
4. This device is equipped with pulse dialing, while the Telecom standard is DTMF tone dialing. There is no guarantee that Telecom lines will always continue to support pulse dialing. Use of pulse dialing, when this equipment is connected to the same line as other equipment, may give rise to 'bell tinkle' or noise and may also cause a false answer condition. Should such problems occur, the user should NOT contact the Telecom Faults Service. The preferred method of dialing is to use DTMF tones, as this is faster than pulse (decadic) dialing and is readily available on almost all New Zealand telephone exchanges.
5. Warning Notice: No '111' or other calls can be made from this device during a mains power failure.
6. This equipment may not provide for the effective hand-over of a call to another device connected to the same line.
7. Some parameters required for compliance with Telecom's Telepermit requirements are dependent on the equipment (PC) associated with this device. The associated equipment shall be set to operate within the following limits for compliance with Telecom's Specifications:

For repeat calls to the same number:

- There shall be no more than 10 call attempts to the same number within any 30 minute period for any single manual call initiation, and
- The equipment shall go on-hook for a period of not less than 30 seconds between the end of one attempt and the beginning of the next attempt.

For automatic calls to different numbers:

- The equipment shall be set to ensure that automatic calls to different numbers are spaced such that there is no less than 5 seconds between the end of one call attempt and the beginning of another.

8. For correct operation, total of the RN's of all devices connected to a single line at any time should not exceed 5.

### **South African Statement**

This modem must be used in conjunction with an approved surge protection device.



### **Telecom Approvals for the Embedded Modem – Model Number 5634SMI**

<b>Country</b>	<b>Status</b>	<b>Approval Number</b>
Argentina	Approved	CNC 54-4936
Australia	Approved	ACN092448710
Austria	Approved	CE
Belgium	Approved	CE
Brazil	Approved	ANATEL 0214-03-1845
Canada	Approved	125-10317A
Chile	Approved	SUBTEL 3672

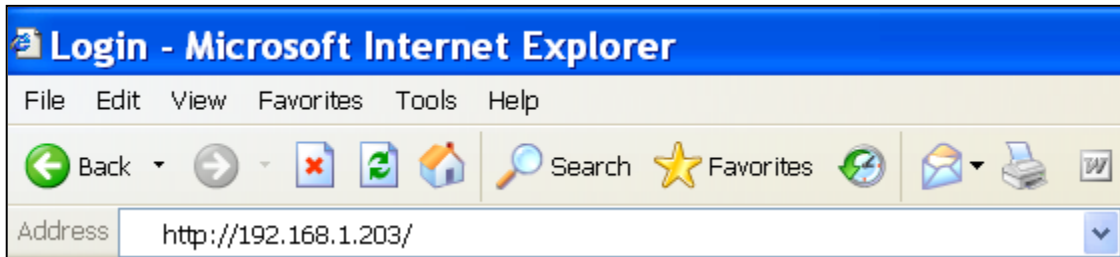


China	Approved	20650004500320
China NALTE	Approved	10-6066-060989
Cyprus	Approved	CE
Czech Republic	Approved	CE
Denmark	Approved	CE
Estonia	Approved	CE
Finland	Approved	CE
France	Approved	CE
Germany	Approved	CE
Greece	Approved	CE
Hong Kong	Approved	SL 300063
Hungary	Approved	CE
Iceland	Approved	CE
India	Approved	TEC/NR/I/MOD-08/01/082.JUL03
Indonesia	Approved	01144/1/POSTEL/2003
Ireland	Approved	CE
Israel	Approved	13-12323-0-103246-07/06
Italy	Approved	CE
Japan	Approved	AD04-0451001
Korea	Approved	TE-A22/K012-04-0357
Latvia	Approved	CE
Liechtenstein	Approved	CE
Lithuania	Approved	CE
Luxembourg	Approved	CE
Malta	Approved	CE
Mexico	Approved	COFETEL:TTDMUMT021-411
Netherlands	Approved	CE
New Zealand	Approved	PTC 0211/00/095 RN=0.5
Norway	Approved	CE
Philippines	Approved	ESD-CPE-04000628
Poland	Approved	CE
Portugal	Approved	CE
Russia Telecom	Approved	д-TOP-0120
Russia Safety	Approved	МЛ05
Singapore	Approved	DB-00626
Slovakia	Approved	CE
Slovenia	Approved	CE
South Africa	Approved	TE-2002/121
Spain	Approved	CE
Sweden	Approved	CE
Switzerland	Approved	CE
Taiwan	Approved	B93-M007-F
Turkey	Approved	AG/UM-2001.235
United Kingdom	Approved	CE
United States	Approved	AU7USA-25814-M5-E REN:03B

# Software Configuration

## Web Management

Enter the switch's IP address in any web browser and login to the web management feature of the 102RAS.



### Default:

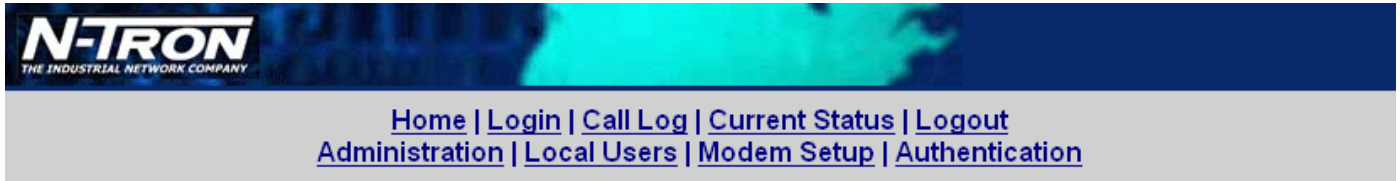
Username: *admin*

Password: *admin*



## Web Management - Home

When the administrator first logs onto the 102RAS, the default home page is displayed. At the top of the screen there is a list of configurable settings which the 102RAS supports. This section of the manual will go through each choice listed at the top of the screen and explain how to configure those settings. In the center of the main home page the administrator/user can see some basic information like what firmware revision the 102RAS is running.



### N-Tron 102 RAS Model 102RAS - Version 1.00



820 S. University Blvd. Suite 4E

Mobile, Alabama 36609

United States

TEL: (251) 342-2164

FAX: (251) 342-6353

Tech Support: (251) 342-2164

Web Site: [www.n-tron.com](http://www.n-tron.com)

Tech Support: [support@n-tron.com](mailto:support@n-tron.com)

## Web Management – Menu Structure

[Home](#) | [Login](#) | [Call Log](#) | [Current Status](#) | [Logout](#)  
[Administration](#) | [Local Users](#) | [Modem Setup](#) | [Authentication](#)

### Home

- Shows information about the manufacturer and the 102RAS, along with support Website and E-Mail addresses.

### Login

- Brings up the Login page

### Logout

- Logs off the current user

### Administration

- **IP Configuration** – Shows the current IP Configuration and allows User to change.
- **SMTP Configuration** – Shows the current SMTP Configuration and allows User to change.
- **Time Configuration** – Shows the current Time Configuration and allows User to change.
- **Reset Unit** – Resets the 102RAS.

### Local Users

- Shows information about the Local User Database, and allows User to modify.

### Call Log

- **Log Parameters** – Shows the current Logging Configuration and allows User to change.
- **Call Log** – Shows the Call Log and allows User to select details for any call.

### Current Status

- **System** – Shows the status of the 102RAS.
- **POTS Modem 1** – Shows the status of the embedded Modem.

### Modem Setup

- **Modem Setup** – Shows the current Modem Configuration and allows User to change.
- **General Modem Setup** – Shows the general Modem Configuration and allows User to change.

### Authentication

- **Authentication Setup** – Shows the current Authentication Configuration and allows User to change.
- **Radius Client Setup** – Shows the current Radius Client Configuration and allows User to change.

## Administration – IP Configuration

The IP Configuration part of the Administration page lists the following information about the 102RAS:

IP Address  
Subnet Mask  
Default Gateway  
Name Server  
Secondary Name Server

Administration: IP Configuration			
<b>IP Address</b>	<input type="text" value="192.168.1.203"/>		
<b>Subnet Mask</b>	<input type="text" value="255.255.255.0"/>	<b>Default Gateway</b>	<input type="text" value="192.168.1.1"/>
<b>Name Server</b>	<input type="text" value="192.168.1.99"/>	<b>Secondary Name Server</b>	<input type="text" value="192.168.1.1"/>
<input type="button" value="update"/>			

You may change the values to apply to your network and select the update button to save the values. The fields for “IP Address”, “Subnet Mask”, “Default Gateway” and “Name Server” are required. A “Secondary Name Server” is optional.

## Administration – SMTP Configuration

The SMTP Configuration part of the Administration page lists the following information about the 102RAS:

SMTP Server Address  
SMTP Port  
Administrator E-Mail  
SMTP Password

Administration: SMTP Configuration			
<b>SMTP Server Address</b>	<input type="text" value="mailserver.com"/>		
<b>SMTP Port</b>	<input type="text" value="25"/>		
<b>Administrator E-mail</b>	<input type="text" value="admin@yoursite.com"/>		
<b>SMTP Server User ID</b>	<input type="text"/>		
<b>SMTP Password</b>	<input type="text"/>	<b>Retype SMTP Password</b>	<input type="text"/>
<input type="button" value="update"/>			

From here you can setup the Mail Server by following the following steps:

- 1) A mail server in the “SMTP Server Address” field.
- 2) The E-Mail address of the Administrator in the “Administrator E-Mail” field.
- 3) If the SMTP Server requires a User ID, enter the ID in the “SMTP Server User ID” field.
- 4) If the SMTP Server requires a password, enter the password in the “SMTP Password” field.
- 5) If you enter a password, retype the identical password in the “Retype SMTP Password” field
- 6) Click on Update. At this point the 102RAS will send the Administrator an e-mail saying that the mail server has been updated.

## Administration – Time Configuration

The Time Configuration part of the Administration page lists the following information about the 102RAS:

- Time Server
- Request Interval
- Time Zone
- Date Format
- Time Format

**Administration: Time Configuration**

**Time Server**

**Add Time Server**

**Request Interval** Days  Hours  Minutes

**Time Zone** (GMT-06:00) Central Standard Time (US & Canada)

**Date Format** mm/dd/yyyy

**Time Format** 12 hour

From here you can set the time configuration used for time stamping on the 102RAS. You can make modifications then click the update button to save the new configuration.

**Note: By default, the 102RAS receives the date and time via Time Server via an internet connection. In the event the Local LAN (where the 102RAS is installed) does not have access to the internet, you must enter the IP Address of a Server on the Local LAN that has a Network Time Protocol (NTP) service enabled in order to have correct date and time recorded in the log.**

## Administration – Reset Unit

**Administration: Reset Unit**

From here the Administrator can remotely reset the 102RAS by clicking on the reset button.

## Local Users

This page shows the local database stored on the 102RAS, and lists the following items:

- Name
- User ID
- Password
- Callback
- Callback#

Local Users						
Name	User ID	Password	Confirm Password	Callback	Callback #	Function
Administrator	admin	•••••	•••••	Disabled	0000	<input type="button" value="update"/> <input type="button" value="delete"/>
				Disabled		<input type="button" value="add"/>

From here, the Administrator's Name, User ID and Password can be changed. Also, Local users may be added by filling out a new row and selecting the add button. Once Local users have been added, a user can be removed by selecting the delete button and can be updated by changing the information and selecting the update button.

### Callback Security Options:

#### 1) Administrator:

If the Callback Security option is enabled and **Admin specified** is selected, then enter your fixed callback telephone number in the **Callback #** window. If the **Callback Security** option is enabled and **User Specified** is selected, you do not enter a telephone number in the **Callback #** window. You enter the callback telephone number during the dial-in process.

#### 2) Remote user:

If you are going to enable the Callback Security option, click on the **Callback** down arrow and choose the callback method. A fixed phone number is **Admin specified** or a variable phone number is **User specified**. For example, if a traveling sales person needs to be called back at their current location, they will provide the callback telephone number during the dial-in process.

If the **Callback Security** option is enabled and **Admin specified** is selected, then enter their fixed callback telephone number in the **Callback #** window. If the **Callback Security** option is enabled and **User specified** is selected, you **do not** enter a telephone in the **callback #** window. The remote user enters the callback number during the dial-in process.

**Note:** The first row is for the "Administrator" function. No matter what values are used for the Name, User ID and Password fields, the first row will apply to the person doing the Administrator function for the 102RAS. The Administrator is the party privileged to configure the 102RAS.

## Call Log

The Call Log screen displays the parameters you can set for the Call Log entries and displays a call log entry for each call.

Log Parameters			
Auto Log Threshold	<input type="text" value="10"/>	Entries	Log History
			<input type="text" value="20"/>
<input type="button" value="Save Changes"/>	<input type="button" value="Send Log Now"/>		<input type="button" value="Delete Log"/>

The Log Parameters define the threshold number of entries and the number of entries retained in the log history. Both Auto Log Threshold and Log History can be set to a maximum of 20 entries by filling in the field and clicking on Save Changes. The log can be E-Mailed to the Administrator address by clicking on Send Log Now and the Log can be deleted by clicking on Delete Log.

Call Log				
Call Type	Time	Username	Rate	Details
Data	06/28/2006 11:21:21 AM	admin	31200	<input type="button" value="Details"/>

The Call Log summarizes each call and the Details button displays an in-depth look at the call from the individual initiating the call, when the call was connected, duration of the call, transmit and receive baud rates, to authentication status.

Call Details			
<b>Username:</b>	admin	<b>Connect Time:</b>	06/28/2006 11:21:21 AM
<b>Initial TX Rate:</b>	31200	<b>Initial RX Rate:</b>	33600
<b>Final TX Rate:</b>	31200	<b>Final RX Rate:</b>	31200
<b>TX Signal Power Level:</b>	20	<b>RX Signal Power Level:</b>	12
<b>TX Frame Count:</b>	4246	<b>RX Frame Count:</b>	1975
<b>TX Frame Error Count:</b>	24	<b>RX Frame Error Count:</b>	1
<b>Near Echo:</b>	23	<b>Far Echo:</b>	62
<b>Retrains By Local:</b>	0	<b>Retrains By Remote:</b>	0
<b>Rate Renegs By Local:</b>	0	<b>Rate Renegs By Remote:</b>	5
<b>Authentication Status:</b>	Pass	<b>Duration:</b>	24 Mins, 12 Secs
		<b>Modulation:</b>	V34
		<b>Protocol:</b>	LAPM/SREJ
		<b>Data Compression:</b>	V42bis
		<b>Noise Level:</b>	46
		<b>Round Trip Delay:</b>	1
		<b>Termination Cause:</b>	1
		<b>Robbed Bit Signaling:</b>	0
		<b>Digital Loss:</b>	0

## Current Status - System

This page shows the Current System Status of the 102RAS and shows the following values:

Current Time  
Up Time  
Pending Messages  
Email Status  
Email To  
Subject  
Time Server Status

Current Status: System			
<b>Current Time</b>	Wed Jun 28 10:39:48 2006	<b>Up Time</b>	17h:58m
<b>Pending Messages</b>	0	<b>Email Status</b>	Mail Server Connect Failed
<b>Email To:</b>	admin@yoursite.com		
<b>Subject:</b>	IP: (192.168.1.203) is online		
<b>Time Server Status</b>	No Errors		

- Current Time - Indicates the present time of day.
- Pending Messages - Indicates the number of e-mails sent to the administrator that have not been opened. These can include debug log messages, mail server change notification messages. (relating to the "SMTP Server Address" field of **Administration** screen).
- Email To - Indicates the Administrator's address to which e-mails should be sent.
- Subject - Title of the last pending or sent e-mail.
- Time Server Status - Indicates the status of the Time server which could be "Initializing", "No Errors", or SNTP Error: *type*.
- Up Time - Operation time since last reboot.
- E-mail Status - Indicates whether the 102RAS e-mail transmissions, both calls and administrative messages, are proceeding with or without errors, may be one of the following. "No Errors", "Bad MailServer Address", "Mail Server Connect Failed", "SMTP Invalid Response", "SMTP Client Timeout".

Note: The 102RAS synchronizes its call time stamps to an Internet source, usually a government standards site. It will attempt contact with the standards web site 5 times in 20 seconds. If contact fails, it will try 5 times again 5 minutes later. If contact succeeds, the 102RAS will update its stamping time periodically per an interval set in the **Administration** screen.



## Current Status – POTS modem 1

This page shows the Current Status of the POTS Modem embedded in the 102RAS.

State  
Connect Time  
Elapsed Time

Current Status:POTS modem 1	
State	Waiting For Ring
Connect Time	
Elapsed Time	
<input type="button" value="Initialize Modem"/>	<input type="button" value="Make Busy"/>

State - Indicates the modem's current operating condition which can be one of the following: "Waiting for Ring", "Initializing Modem", "Waiting for Connect", "User login", "Getting Call Info".

Connect Time - The date and time at which the connection began for the current call.

Elapsed Time - The duration of the current call in seconds.

The Administrator can also initialize the modem by clicking on Initialize Modem, or make the modem go off hook by clicking on Make Busy.

## Modem Setup

This page shows the current Modem configuration of the 102RAS.

Modem Usage  
Country Code  
Number of rings to answer on

Modem Setup	
Modem Usage	<input type="text" value="RAS"/>
<input type="button" value="update"/>	

General Modem Setup	
Country Code	<input type="text" value="Not Defined"/>
Answer On	<input type="text" value="2"/> ring(s)
<input type="button" value="update"/>	

If you are using the 102RAS for dial-in PPP access (default usage), you do not have to modify the modem usage, but you do have to select the Country Code.

**Note: The following modem sharing options are available, but N-Tron does not provide technical support for using third party software with the 102RAS (N-Tron also does not provide any software for this use).**

If you are using your 102RAS for dial-out, you will have to select one of the Modem Sharing options and select the Country Code. With any of the Modem Sharing options, the TCP port number used to access the modem is 7000. Modem Sharing with authentication means a login prompt will be issued to the socket when it is opened. The opener of the socket must provide appropriate credentials before access is given to the modem. If RAW is also selected – support for RFC 2217 (com port control vial Telnet) will be disabled.

**Modem Sharing – No Authentication** - Immediate access is given to the modem.

**Modem Sharing – Local Authentication** - A valid set of credentials, defined in the Local User data base, is required before access is granted.

**Modem Sharing – Radius Authentication** - A valid set of credentials, defined in the Radius User data base, is required before access is granted.

**Modem Sharing – Raw Mode with No Authentication** - User data is treated “as is”, without interpretation, and no authentication is required.

**Modem Sharing – Raw Mode with Local Authentication** - User data is treated “as is”, without interpretation, and a valid set of credentials, defined in the Local User data base, is required before access is granted.

**Modem Sharing – Raw Mode with Radius Authentication** - User data is treated “as is”, without interpretation, and a set of credentials, defined in the Radius User data base, is required before access is granted.

**Caution:** Modem sharing is accomplished by implementing a Telnet interface to the 102RAS’s embedded modem. Secure the access to the port via a firewall or IP filter settings to prevent unauthorized use of your modem resource.

## Authentication

This page shows the current Authentication configuration of the 102RAS.

Authentication Setup  
Remote Host Address  
Radius Server Address 1 and Port  
Radius Accounting Address 1 and Port  
Secret

Authentication Setup	
Authenticaton Type	local <input type="button" value="v"/>
Remote Host Address	192.168.1.205

If your database for user credentials resides in the Local User Database on the 102RAS, then accept the default – “local”. If your user database resides on a Radius Server, then click on the down arrow and choose radius.

If modem usage is RAS, enter a static IP Address in the Remote Host Address window which will be assigned to the dial-in user. This Remote Host Address has to match the network scheme of the 102RAS.

Radius Client Setup			
<b>RADIUS Server Address 1</b>	<input type="text" value="192.168.1.2"/>	<b>Port</b>	<input type="text" value="1812"/>
<b>RADIUS Accounting Address 1</b>	<input type="text" value="192.168.1.2"/>	<b>Port</b>	<input type="text" value="1813"/>
<b>Secret</b>	<input type="text" value="secret"/>		
<input type="button" value="Update"/>			

If you are setting up the 102RAS to use Radius authentication, then:

- 1) Enter the IP address of the primary RADIUS Server in the RADIUS Server Address 1 field.
- 2) Enter the port number (usually port 1812) for the RADIUS Server in the top Port field.
- 3) Enter the IP address of the Radius Accounting server in the RADIUS Accounting Address 1 field.
- 4) Enter the port number (usually port 1813) for the Radius Accounting Server in the bottom Port field.
- 5) Enter the Secret of the Radius Server that you are communicating with. The Secret has to be identical to the one used by your Radius Server.

## KEY SPECIFICATIONS

### Physical

<i>Height:</i>	3.40" (8.64cm)
<i>Width:</i>	1.50" (3.81 cm)
<i>Depth:</i>	3.60" (9.14 cm)
<i>Including DIN-Rail Mount:</i>	4.32" (10.9 cm)
<i>Weight:</i>	0.70 lbs (0.32 kg)
<i>DIN-Rail:</i>	35mm

### Electrical

<i>Redundant Input Voltage:</i>	10-30 VDC (Regulated)
<i>Input Current:</i>	221 mA at 24VDC (Steady State)
<i>Inrush Current:</i>	7.4 A /0.7 ms at 24VDC
<i>Input Ripple:</i>	Less than 100 mV

### Environmental

<i>Operating Temp:</i>	-20°C to 70°C
<i>Storage Temp:</i>	-40°C to 85°C
<i>Operating Humidity:</i>	10% to 95% (Non Condensing)
<i>Operating Altitude:</i>	0 to 10,000 ft.

### Shock and Vibration (bulkhead mounting)

<i>Shock:</i>	200g @ 10ms
<i>Vibration/Seismic:</i>	50g, 5-200Hz, Triaxial

### Reliability

<i>MTBF:</i>	>1Million Hours
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### Network Media

<i>10BaseT:</i>	>Cat3 Cable
<i>100BaseTX:</i>	>Cat5 Cable

### Connectors

10/100BaseTX:	One (1) RJ-45 TX Copper Port
Phone Line:	One (1) RJ-11 Modular Port

### Modem Port

V.92/56K Modem	Data: V.92, V.90, enhanced V.34 & below Error Correction: V.42 Data Compression: V.44, MNP Class 5; V.42bis
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### Recommended Wiring Clearance:

<i>Top:</i>	1" (2.54 cm)
<i>Front:</i>	2" (5.08 cm)
<i>Side:</i>	1" (2.54 cm)

## **REGULATORY APPROVALS**

**SAFETY:** Suitable for use in Class I, Division 2, Groups A, B, C and D Hazardous Locations, or Nonhazardous Locations only.

**EMI:** EN 55022: 1998 w/A1 & A2, CISPR 22 - Class A  
47 CFR, Part 15, Subpart B - Class A  
47 CFR, Part 68 (Embedded Device – Multi-Tech Systems Model: MT5634SMI)

**EMS:** EN 55024: 1998 w/A1 & A2  
IEC 61000-4-2 Ed. 1.2 (ESD)  
IEC 61000-4-3 Ed. 2.1 (RS)  
IEC 61000-4-4 2<sup>nd</sup> Ed. (EFT)  
IEC 61000-4-5 2<sup>nd</sup> Ed. (Surge)  
IEC 61000-4-6 Ed. 2.1 (Conducted Disturbances)

**GOST-R Certified.**

**Warranty:** Effective January 1, 2008, all N-TRON products carry a 3 year limited warranty from the date of purchase.

### **N-TRON Limited Warranty**

N-TRON, Corp. warrants to the end user that this hardware product will be free from defects in workmanship and materials, under normal use and service, for the applicable warranty period from the date of purchase from N-TRON or its authorized reseller. If a product does not operate as warranted during the applicable warranty period, N-TRON shall, at its option and expense, repair the defective product or part, deliver to customer an equivalent product or part to replace the defective item, or refund to customer the purchase price paid for the defective product. All products that are replaced will become the property of N-TRON. Replacement products may be new or reconditioned. Any replaced or repaired product or part has a ninety (90) day warranty or the remainder of the initial warranty period, whichever is longer. N-TRON shall not be responsible for any custom software or firmware, configuration information, or memory data of customer contained in, stored on, or integrated with any products returned to N-TRON pursuant to any warranty.

**OBTAINING WARRANTY SERVICE:** Customer must contact N-TRON within the applicable warranty period to obtain warranty service authorization. Dated proof of purchase from N-TRON or its authorized reseller may be required. Products returned to N-TRON must be pre-authorized by N-TRON with a Return Material Authorization (RMA) number marked on the outside of the package, and sent prepaid and packaged appropriately for safe shipment. Responsibility for loss or damage does not transfer to N-TRON until the returned item is received by N-TRON. The repaired or replaced item will be shipped to the customer, at N-TRON's expense, not later than thirty (30) days after N-TRON receives the product. N-TRON shall not be responsible for any software, firmware, information, or memory data of customer contained in, stored on, or integrated with any products returned to N-TRON for repair, whether under warranty or not.

**ADVANCE REPLACEMENT OPTION:** Upon registration, this product qualifies for advance replacement. A replacement product will be shipped within three (3) days after verification by N-TRON that the product is considered defective. The shipment of advance replacement products is subject to local legal requirements and may not be available in all locations. When an advance replacement is provided and customer fails to return the original product to N-TRON within fifteen (15) days after shipment of the replacement, N-TRON will charge customer for the replacement product, at list price.

**WARRANTIES EXCLUSIVE:** IF AN N-TRON PRODUCT DOES NOT OPERATE AS WARRANTED ABOVE, CUSTOMER'S SOLE REMEDY FOR BREACH OF THAT WARRANTY SHALL BE REPAIR, REPLACEMENT, OR REFUND OF THE PURCHASE PRICE PAID, AT N-TRON'S OPTION. TO THE FULL EXTENT ALLOWED BY LAW, THE FOREGOING WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES, TERMS, OR CONDITIONS, EXPRESS OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW, STATUTORY OR OTHERWISE, INCLUDING WARRANTIES, TERMS, OR CONDITIONS OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, SATISFACTORY QUALITY, CORRESPONDENCE WITH DESCRIPTION, AND NON-INFRINGEMENT, ALL OF WHICH ARE EXPRESSLY DISCLAIMED. N-TRON NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT ANY OTHER LIABILITY IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE OR USE OF ITS PRODUCTS. N-TRON SHALL NOT BE LIABLE UNDER THIS WARRANTY IF ITS TESTING AND EXAMINATION DISCLOSE THAT THE ALLEGED DEFECT OR MALFUNCTION IN THE PRODUCT DOES NOT EXIST OR WAS CAUSED BY CUSTOMER'S OR ANY THIRD PERSON'S MISUSE, NEGLIGENCE, IMPROPER INSTALLATION OR TESTING, UNAUTHORIZED ATTEMPTS TO OPEN, REPAIR OR MODIFY THE PRODUCT, OR ANY OTHER CAUSE BEYOND THE RANGE OF THE INTENDED USE, OR BY ACCIDENT, FIRE, LIGHTNING, POWER CUTS OR OUTAGES, OTHER HAZARDS, OR ACTS OF GOD.

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**GOVERNING LAW:** This Limited Warranty shall be governed by the laws of the State of Delaware, U.S.A.  
(Revised 2010-11-15)